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MITES OF THE GENUS *TENUIPALPUS* (Acarina: Trichadenidae)

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The genus *Tenuipalpus* was proposed by Donnadieu in 1875, and the type has been designated as *T. palmatus* Donn. Since *T. palmatus* and the closely allied species are now considered generically distinct from the other members of the genus, such as *T. inornatus* Banks, the name should be restricted to the *palmatus* group; and the name *Brevipalpus* Donn., 1875, which has been synonymized with *Tenuipalpus*, should be reinstated as the generic name for the *inornatus* group of mites. The type of the genus *Brevipalpus* is *obovatus* Donn., 1875.

The mites composing the genus *Tenuipalpus* are members of the family Trichadenidae<sup>1</sup> and are plant feeders. So far as is known, none of the species herein considered cause much damage to their hosts, although some members of the closely related *Brevipalpus* are of economic importance.

The study was based on the collection at the United States National Museum, Washington, D. C. Except for *Tenuipalpus palmatus* the species treated are established in the United States or have been intercepted on imports.

The genus *Tenuipalpus* is characterized by the broad propodosoma and the narrowed hysterosoma; by the presence of a few striations on the skin instead of reticulations; by having the ventral hysterosomal plates not plain as in *Brevipalpus* and the marginal body hairs large, lanceolate; by the presence of 4 pairs of broadly lanceolate posterior marginal hairs and a single pair of long, whiplike posterior hairs; by a palpus consisting of 3 segments, the penultimate segment provided with a long semiplumose hair and the last with 1 or 2 simple hairs; by the presence of a pair of semi-plumose ventral rostral hairs;

<sup>1</sup>The family Trichadenidae Ouds., 1938, includes the following genera: *Trichadenus* Rondani, 1870 (not placed in a family until 1938); *Brevipalpus* Donn., 1875, *Tenuipalpus* Donn., 1875, *Raoiella* Hirst, 1924, and *Tegopalpus* Womersley, 1940, all of which were formerly in the family Tetranychidae; also *Phyllotetranychus* Sayed, 1938, which had been put in Pseudotetranychinae (Tetranychidae). These genera differ principally from those of the family Tetranychidae in having highly simplified palpi.

and by the flat body. The type of the genus is *Tenuipalpus palmatus* Donnadieu 1875. This genus will also include *T. palmatus* var. *simplex* Oud. and *T. orchidarum* Parfitt, which are otherwise not mentioned in this paper.

***Tenuipalpus palmatus* Donnadieu**

(Fig. 1)

*Tenuipalpus palmatus* Donnadieu, 1875, Recherches pour servir a l'histoire des Tetranyques. Lyon, pp. 112-114, pl. I, II, fig. 1-19.

In the U. S. National Museum Collection there is a single slide with a male and a female from the Berlese Collection. Owing to the thickness of the mount the characters of the male are difficult to see, but the female is in rather good condition for study. The male does not have large dorsal lanceolate setae on the hysterosoma but small, short, lanceolate-like setae, and the abdomen is narrower than in the female. Otherwise there is very little difference between the sexes. In both specimens the ventral side is indistinct.

*Male*.—Penultimate palpal segment with a semiplumose hair; 3rd segment, small, slender, and apparently with only one terminal hair, which is about one-half the length of the semiplumose hair, ventral rostral hairs semiplumose. Shield over mouth parts simple. Anterior and median dorsal propodosomal setae small, lanceolate. Anterior shoulder seta large, lanceolate, situated just behind a dorsal projecting lobe or plate. Paired eyes somewhat in from body margin, shoulder hairs of hysterosoma shorter, broader than on propodosoma, and placed anterior to a projecting lobe or plate. Dorsal hysterosomal setae like the dorsal propodosomal hairs. Along the posterior lateral margin 4 pairs of large lanceolate setae and a single pair of long whiplike hairs. Tarsal claws and hairs not clearly seen but there appear to be a pair of tenant hairs on each claw and a row on the pulvillus. Ventral tarsal setae strong, pilose; long, simple dorsal seta, with lanceolate seta on outside and thick spinelike pilose seta on inside margin of tarsus. Legs I, II, and III with lanceolate setae; lanceolate seta of trochanter III smaller than the hysterosomal shoulder seta. Legs wrinkled. Length 262  $\mu$ ; width 181  $\mu$ .

*Female*.—Anterior ventral setae pilose; the long median pair simple; dorsal hysterosomal setae large and broadly lanceolate. Length, including rostrum, 313  $\mu$ , width 219  $\mu$ .

The listed host plants are *Viburnum tinus* and *Citrus* spp. It is South European in distribution and as yet has not been taken by foreign plant quarantine inspectors of the Bureau of Entomology and Plant Quarantine.

***Tenuipalpus micheli* Lawrence**

(Figs. 2-4)

*Tenuipalpus micheli* Lawrence, 1940, Jour. Ent. Soc. South Africa, 3: 111-113, figs. 4, 5.

Lawrence's description of a single female from *Chaetaeme aristata* at Umhlote Beach, Natal, South Africa, is sufficiently detailed to permit determination of specimens from Florida as the same species. Several specimens were taken on magnolia, Jacksonville, Fla., April 24, 1924, by Robertson and Williams, and several on oak at Cocoa Beach, Fla., December 11, 1942, by O. D. Link. Specimens have also been taken on *Sobralia macrantha*, Guatemala, at San Francisco, Calif., October 12, 1943 (collector unknown).

This species differs from *Tenuipalpus palmatus* Donn. in having the hysterosomal shoulder setae smaller than the third trochanter setae, and the third palpal segment provided with a long and a short hair. There appear to be rows of tenant hairs arising from pulvillus and tarsal claw as figured.

The mites from oak are much broader than those from magnolia. Female (from oak) 306  $\mu$  long and 262  $\mu$  wide; male 262  $\mu$  long and 206  $\mu$  wide. As in the preceding species, the dorsal abdominal hairs of the female are large and broadly lanceolate, while those of the male are small and lanceolate.

***Tenuipalpus carolinensis*, new species**

(Fig. 5)

*Female*.—Third palpal segment stout and with only one seta. Shield over rostrum long, simple. The 2 pairs of dorsal anterior setae on propodosoma small, the shoulder setae long, lanceolate. Eyes set slightly behind and in from shoulder setae. All hysterosomal setae small except those on posterior margin; these 4 pairs large, lanceolate; also a single pair of long simple hairs. Genital setae of female as usual. Only one pair of long hairs opposite posterior coxae; hairs of coxae III and IV longish. A pair of long and a pair of short hairs on posterior venter of propodosoma; anterior ventral hairs long, simple. Apparently no claws, only 3 pairs of tenant hairs arising from vestigial remains of claws and pulvilli. Leg hairs strong, those on basal segments lanceolate. Legs wrinkled. Tarsus I with the usual long dorsal terminal hair; an outer simple hair, and below this a rodlike seta of medium length; on opposite inner side a strong simple hair; ventral hairs simple. Length, including rostrum, 294  $\mu$ , width 156 $\mu$ .

*Type*.—U. S. National Museum No. 1479.

Described from a single specimen taken from goldenrod at Batesburg, S. C., March 26, 1910, by "H. F. W." On the same slide is a specimen of *Brevipalpus inornatus* (Banks). It is

quite possible that the mite was only a straggler and that goldenrod is not the true host.

Although very close to *Tenuipalpus orchidarum* Oud., *T. carolinensis* is considered distinct because of the difference in the ventral hairs, and in the presence of one instead of two setae on the third palpal segment, as well as in distribution and hosts (*T. orchidarum* is from orchids in Java).

***Tenuipalpus guamensis*, new species**

(Figs. 6, 7, 8)

*Female*.—Third palpal segment apparently cylindrical, longish, and with only one long, straight, strong seta. Shield of normal size, simple. Dorsal propodosomal setae small, the anterior median ones slightly larger, both pairs lanceolate; shoulder setae large, lanceolate. The paired eyes behind shoulder setae and in from body margin. Hysterosomal shoulder setae of medium size, lanceolate; dorsal hairs minute; posterior marginal hairs large, lanceolate with the exception of the pair of long setae. Ventral hysterosomal hairs pilose except for posterior pair; ventral propodosomal hairs pilose except for the long median anterior pair and the short posterior pair. Tenant hairs hard to see, but they appear to be as in *T. micheli*. Leg hairs lanceolate; legs wrinkled. Length, including rostrum, 356  $\mu$ , width 256  $\mu$ .

*Male*.—The same general description holds for the male. However, none of the genital hairs pilose; the 2 anterior pairs of ventral hysterosomal hairs pilose. Ventral propodosomal hairs as in female. Length, including rostrum, 275  $\mu$ ; width 219  $\mu$ .

*Type*.—U. S. National Museum No. 1480.

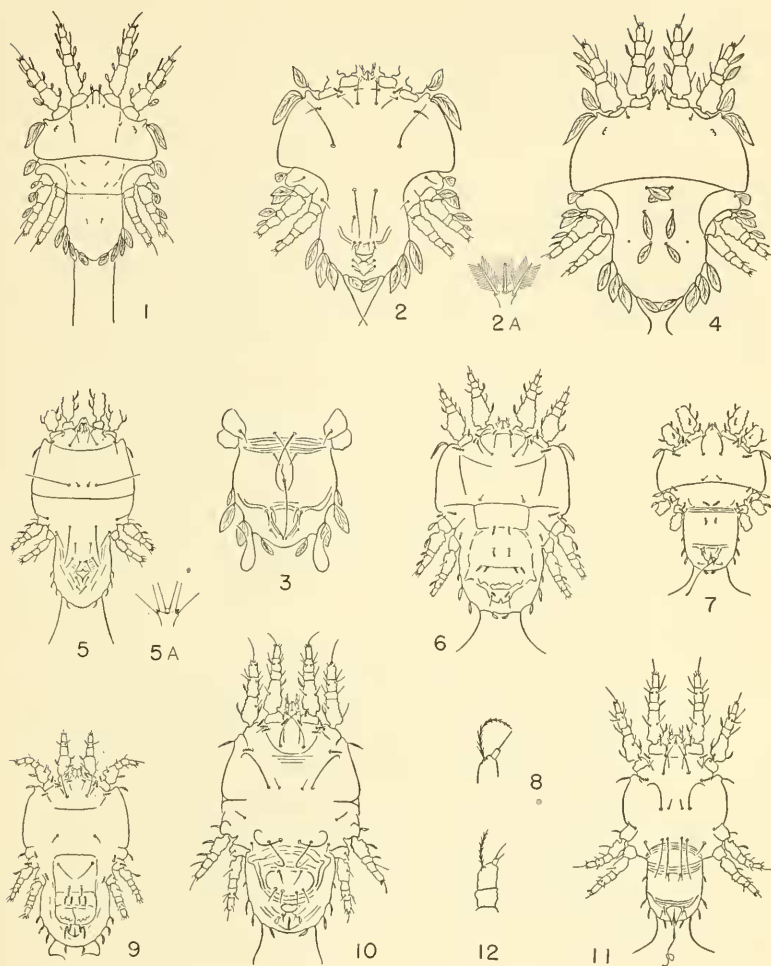
The type (female), allotype male, and two paratypes of each sex on a single slide; taken on *Neottopteris nidus*, Sumay, Guam, February 11, 1938, by R. G. Oakley.

The chaetotaxy is distinctive.

***Tenuipalpus heveae*, new species**

(Fig. 9)

*Female*.—Penultimate palpal segment rather short and broad, with the curved, semi-pilose seta; 3rd segment small, with a single long spine which approaches the tip of the semiplumose seta. Shield small with only a rounded lateral "tooth," or protuberance. Dorsal propodosomal setae small, the center-median pair being the smaller; shoulder setae large, lanceolate. Eyes slightly behind and in from shoulder. Hysterosomal shoulder seta almost as large as posterior-marginal setae; dorsal setae minute; posterior-marginal setae large, lanceolate except for the pair of long whiplike setae. All ventral hysterosomal hairs, except the single pair of long anterior hairs, pilose. The posterior pair and the long anterior-median pair of ventral propodosomal hairs simple, the rest pilose. Legs typical of the genus but with fewer lanceolate hairs; tenant hairs as in *T. micheli*. Length, including rostrum, 256  $\mu$ ; width 169  $\mu$ .



*Tenuipalpus palmatus* Donn. Fig. 1. Dorsal view of male.

*Tenuipalpus micheli* Lawrence. Fig. 2. Ventral view of female. Fig. 2A. Schematic drawing of tarsal tenant hairs. Fig. 3. Ventral view of hysterosoma of male. Fig. 4. Dorsal view of female.

*Tenuipalpus carolinensis*, new species. Fig. 5. Ventral view of female. Fig. 5A. Schematic drawing of tarsal tenant hairs.

*Tenuipalpus guamensis*, new species. Fig. 6. Ventral view of female. Fig. 7. Ventral view of male. Fig. 8. Tip of palpus.

*Tenuipalpus heveae*, new species. Fig. 9. Ventral view of female.

*Tenuipalpus pacificus*, new species. Fig. 10. Ventral view of female. Fig. 11. Ventral view of male. Fig. 12. Palpus.

*Type*.—U. S. National Museum No. 1481.

Type and paratype (on same slide) collected on the underside of rubber leaf, Belterra, Brazil, 1941. From J. A. Zilles.

The chaetotaxy is distinctive.

***Tenuipalpus pacificus*, new species**

(Figs. 10–12)

*Female*.—Palpal segments short, broad, wrinkled; 3rd segment small, with a short, straight seta and a longer, slightly curved seta. Shield of normal size with a single simple lateral tooth. Dorsal propodosomal setae small, lanceolate; shoulder setae larger, about size of posterior-marginal setae but not so wide. Eyes slightly to rear and in from shoulder setae. Hysterosomal shoulder and dorsal setae small; anterior pair of posterior-marginal setae not much larger than dorsal setae; rest of marginal setae of normal size. All ventral hysterosomal hairs simple, the 2 pairs between the posterior coxae very long and fine. Posterior row of ventral propodosomal hairs simple, the inner pair short and the outer pair long; anterior median pair long and simple; the other hairs pilose. Tenant hairs hard to see but they appear to be as in *T. micheli*. Tarsi I and II at tips each with a rod-like, slightly curved seta. Ventral leg hairs pilose; lateral and dorsal hairs larger, lanceolate, serrate. Legs wrinkled. Length of female, including rostrum, 312  $\mu$ ; width 190  $\mu$ .

*Male*.—Same general appearance as female except smaller and narrower. Length 269  $\mu$ ; width 150  $\mu$ .

*Type*.—U. S. National Museum No. 1482.

The type (female) and a single male (allotype) on slide with paratype females and nymphs, taken on *Phalaenopsis stuartiana*, from Canal Zone, at Hoboken, N. J., U. S. A., by D. P. Limber, April 26, 1943. Also paratype slides of mites taken on *Saccolabium gigantum* var. *illustre*, from Australia, at Hawaii by T. F. Chong, April 11 and 12, 1936; on *Phalaenopsis lindenii*, from Philippine Islands, at Hawaii by T. F. Chong, April 11, 1938; on *Aerides falcatum*, from Bangkok, Siam, at Washington, D. C., by D. P. Limber, May 20, 1938; on *Phalaenopsis amabilis*, from Philippine Islands, at Hawaii, by T. F. Chong, April 11, 1938.

The chaetotaxy is distinctive.

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**A MOSQUITO SYNONYM (Diptera: Culicidae)**

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In describing the subgenus *Luzonus* in the genus *Aedes*, the writer and R. M. Bohart made an inexcusable synonym. We failed to compare the genitalia of *Aedes (Luzonus) clavirostris* with those of the genus *Ficalbia*, and we put too much reliance